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THE LATEST THE INTERNET HAS TO OFFER



Web Sites Worth Mentioning

www.pcbrc.com The Printed Circuit Buyer's Resource Center has expanded its free "Ask an Expert" service to professionals with PCB assembly questions. The service connects users with hundreds of technology experts, ranging from fabricator and assembly technologists, materials and components developers to design professionals. The experts answer most questions within 24 hours.

www.globalspec.com GlobalSpec Inc., a specialized search engine and online community for engineers and technical buyers, has signed a marketing agreement with eBay. The two companies hope to give users greater access to product information for purchasing and selling decisions.

www.SMTspares.com SMT Resource Group LLC, a seller, integrator and provider of support and service for new and refurbished electronics assembly equipment, has announced a secure E-commerce Web site dedicated to fill all surface-mount technology needs. Over 5,000 feeders, 500 conveyors and spares are currently available. Visit the site often to check the status of new spares.

http://ocw.mit.edu/OcwWeb Are you interested in higher learning at a lower cost? MIT course lectures are now available for free download. While you will not receive credit, you may just learn a thing or two!



Industry Resources

www.pcdandm.com/pcdman/resource/pcb_basics.shtml The fourth edition of *Printed Circuit Board Basics* is now available. From design and manufacturing to purchasing to considerations for managing the business, concepts are explained in simple terms. This edition contains an updated primer on single-, double-sided and multilayer PCB manufacturing processes; a review of new technologies such as embedded components and microvias (HDI); updated PCB specifications; a history of the industry; and an updated glossary of terms and definitions.



Surveys and Guides

www.circuitsassembly.com/bg_intro Visit our recently updated Online Buyers Guide, a comprehensive source of supplier information. You can search for specific products, supplier contact information or industry services. If you are a supplier, be sure to register if your company is not already listed.

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www.circuitsassembly.com

- 2004 Salary Survey Questionnaire
Don't miss your chance to be counted!
- Process Defect Clinic
Bob Willis, EPS

Would you like to contribute to NET gain?

Contact Robin Norvell at rnorvell@upmediagroup.com

Celestica CEO Polistuk Retires

Celestica Inc. (Toronto, Ontario, Canada, www.celestica.com), an electronics manufacturing services (EMS) provider, has announced that Eugene V. Polistuk, chairman and chief executive officer, decided to retire on January 29.

Polistuk has led the company since its establishment in 1994, when Celestica was a standalone subsidiary of IBM. Onex Corp. acquired Celestica in 1996, and the company subsequently went public in 1998.

The company reports that its board of directors understands and accepts Polistuk's decision to retire and appreciates the contribution he has made to Celestica's success.

Robert L. Crandall, who has been a director of the company since 1998, has been appointed to the position of chairman of the board. The board has established a search committee to select a replacement for Polistuk. Candidates from both within and outside the company will be considered.

In the interim, Stephen W. Delaney has been appointed chief executive officer. Delaney has been with Celestica since 2001, most recently as president of its Americas operations. Prior to joining Celestica, Delaney held executive and senior management roles in operations at Visteon Automotive Systems, AlliedSignal's electronic systems business, Ford's electronics division and IBM's telecommunications division.

J. Marvin MaGee will remain in his current position as president and chief operating officer, Anthony P. Puppi will continue as executive vice president and chief financial officer and R. Thomas Tropea will remain vice chair, worldwide marketing and business development.

Reptron Confirms Plan For Reorganization

Reptron Electronics Inc. (Tampa, FL, www.reptron.com), an electronics manufacturing services company, reported that its Second Amended Plan of Reorganization under Chapter 11 of the Bankruptcy Code was confirmed by the U.S. Bankruptcy Court on Jan. 14. The effective date of this confirmation occurred on Jan. 26, about 90 days from the original filing date.

Under the confirmed plan of reorganization, the company's unsecured class of creditors that includes its existing convertible notes will receive new notes with a total principal amount of \$30 million. The existing notes, along with all accrued and unpaid interest, will be cancelled. The unsecured class of creditors will also receive 95% of the common shares of the reorganized company. Existing common shareholders will receive the remaining 5% of the common shares of the reorganized company.

"The restructuring of our convertible notes is a key component in our strategic plan, which we believe positions the company to take advantage of future growth opportunities," said Paul J. Plante, Reptron's president and chief operating officer. "Once the restructuring is completed, Reptron will have reduced its debt load by over \$70 million over the past 12 months."

Digi-Key, Murata Announce Distribution Agreement

Digi-Key Corp (Thief River Falls, MN, www.digikey.com) has added Murata Electronics (Smyrna, Georgia, www.murata.com), a supplier of ceramic passive components, to its vendor and product offering.

Mark Larson, president of Digi-Key, said, "We are cataloging, and supporting with substantial inventory, nearly 2,000 Murata components, including ceramic capacitors, trimmers, resonators, thermistors, filters, inductors and potentiometers."

Digi-Key will offer customers the full line of Murata's products. Digi-Key hopes to enhance Murata's diverse distribution strategy by increasing the manufacturer's position within a variety of markets. Both companies will work closely to provide design enhancements for existing and future products to their customer base.

Digi-Key Corp. is a full service provider of electronic components. Its Website offers online commerce capabilities along with 24/7 instant access to a broad-based, multi-million dollar product inventory. Murata Electronics is one of 47 wholly owned subsidiaries of the world organization Murata Manufacturing Co. Ltd. of Japan. Murata is a patent holder and global manufacturer of ceramic electronic components for the telecommunications, computer/peripheral, automotive, communications and electronics markets.

MIT Professor to Keynote NEPCON/Assembly East

Professor Deborah Nightingale, PhD., of the Massachusetts Institute of Technology (MIT, Cambridge, MA) Lean Aerospace Initiative (LAI, <http://lean.mit.edu>) will present a keynote presentation, "Transforming the Lean Enterprise Value Stream," on May 6, as part of NEPCON East/Electro and Assembly East. The co-located manufacturing shows will take place May 5-6 at the Hynes Convention Center in Boston, MA.

In her address, Professor Nightingale will share the successes that the MIT LAI has experienced with its implementations of lean ideas. The presentation will focus on the need for contemporary networked enterprises transforming the entire value stream, including suppliers and partners. Dr. Nightingale will explain how applying lean principles to all life cycle, enabling and leadership processes will be required to achieve value for the total enterprise.

Nightingale is a professor of practice in the department of aeronautics and astronautics and the Engineering Systems Division. She serves as the MIT lead on the Lean Enterprise research and product development team within the LAI. Prior to joining MIT in 1977, she worked for AlliedSignal Aerospace for 17 years, serving in executive leadership positions across the entire enterprises.

The conference program at the collocated shows will begin on May 4. The shows will provide Northeast manufacturers with manufacturing solutions at the board, component and final product assembly levels. In addition, attendees can see more new products with the concurrent running of the Vision East Show, featuring automated machine vision solutions.

Siemens Dematic, Rochester Institute Partner for Process Training

Siemens Dematic Electronics Assembly Systems (EAS, Norcross, GA, www.siemens-dematic.us) announced its intention to provide comprehensive surface-mount technology process training for the Americas in partnership with the Center for Electronics Manufacturing & Assembly (CEMA) at the Rochester Institute of Technology (RIT, Rochester, NY, www.rit.edu/~smt/).

The training will take place at RIT's CEMA facility, which has a fully equipped surface-mount technology laboratory with screen printing, dispensing, pick-and-place, reflow, rework stations, optoelectronics workstations, wire bonding, test and inspection equipment.

The five-day hands-on course aims to provide participants with a thorough understanding of surface-mount technology and advanced packaging principles needed for supporting and troubleshooting the surface-mount process. The course will offer extensive discussions on process parameters and process characteristics, as well as identifying and correcting defects.

To find out more, visit www.siplace.com.

SMTA Seeks Submissions for Student Grant

The Charles Hutchins Educational Grant, co-sponsored by the Surface Mount Technology Association (SMTA, Minneapolis, MN, www.smta.org) and *Circuits Assembly* magazine (Atlanta, GA), is seeking submissions for its 2004 award. The grant was established in memory of past SMTA president and industry colleague Dr. Charles Hutchins.

The \$5000 grant is awarded annually to a graduate-level student pursuing a degree and working on thesis research in electronics assembly, electronics packaging or a related field. The grant is intended for the purchase of technical books and research materials, for participation in conferences related to electronics assembly and packaging, and for living expenses if necessary. To be considered for this award, students must submit the entry form, current academic transcripts, an advisor's letter of recommendation, a resumé and a one-page thesis research abstract.

Entry materials are due April 15, after which the SMTA Grant Committee will review all qualified award applications. Once received, the SMTA will look at the following specific criteria: the technical importance within the electronics industry, student transcripts, the clarity with which students are able to define objectives and methodology and qualifications based on the submitted letters of recommendation.

For more information, visit: www.smta.org/hutchins/student_app.cfm.

RIT Selects Glenbrook for X-Ray Inspection

Glenbrook Technologies (Randolph, NJ, www.glenbrooktech.com) has announced that the Rochester Institute of Technology (RIT, Rochester, NY) has selected a Jewel Box 70-T real-time x-ray inspection system for use in the surface-mount technology laboratory of its Center for Electronics Manufacturing and Assembly (CEMA). The facility provides facilities, equipment, capabilities and technical expertise to help manufacturers improve process yields and productivity while lowering costs.

RIT and Glenbrook have also formed a research partnership that allows Glenbrook to use the lab for demonstrations and refer customers to CEMA for x-ray services. The company will provide support to CEMA for funding proposals and ensure that students have hands-on x-ray inspection capabilities.

CEMA supports RIT's undergraduate and graduate degree programs in electrical, mechanical and manufacturing engineering and engineering technology. It also offers applied research and evaluation of material; beta testing, evaluation and process capability analysis for electronics packaging equipment and process evaluation. The lab has the capability to produce prototype assemblies and provide board design, manufacturing, inspection, testing and rework services.

At CEMA, the x-ray inspection system will be used for a variety of applications, including circuit board inspection, ink tank inspection and print cartridges.



Wafer-Level Event To Track IC Packaging

The first annual International Wafer-Level Packaging Congress (IWLPC) to explore semiconductor packaging and test technologies, with special emphasis on three-dimensional (3-D) stacked packaging, will be presented in San Jose, CA, on Oct. 10-12. The congress and exhibition are sponsored jointly by the Surface Mount Technology Association (SMTA, Minneapolis, MN, www.smta.org) and *Chip Scale Review* magazine (San Jose, CA, www.chipscalereview.com).

SMTA vice president of technical programs Dr. Ken Gilileo of ET-Trends LLC and Joseph Fjelstad, co-founder of SiliconPipe, will co-chair the technical program. Both are respected speakers on semiconductor packaging and interconnection topics. Session speakers will include Dr. Thomas Di Stefano, who is recognized as a pioneer in the development and adaptation of chip-scale and wafer-level packaging.

In addition to its focus on WLP, the congress will explore many topics in chip-scale packaging and other advanced packaging processes. A key area of interest scheduled for discussion is 3-D packaging. The dual-track program will address package design concerns, package assembly, fabrication technologies, board design for chip-scale packages and test/reliability. Featured workshops will explore issues in wire bonding, wafer bumping, encapsulants, lead-free strategies and test.

"Wafer-level packaging is a pivotal technology that should see an expanded role in integrated circuit (IC) packaging owing to the many potential benefits it offers IC product developers, including cost savings and increased performance," said Fjelstad.

"Although wafer-level packaging is crossing into the mainstream, other important technologies, such as 3-D packaging and wafer bonding, are becoming increasingly important to the semiconductor industry," said Gilileo. "Congress attendees will learn how wafer-level packaging, chip-scale packaging, system-on-chip, system-on-package and other technologies will affect the semiconductor packaging business."

IPAC Announces QFN Production Onshore

Integrated Packaging Assembly Corp. (IPAC, San Jose, CA, www.ipac.com), an integrated circuit (IC) packaging foundry in Silicon Valley, announced that it is the only U.S. source for high-volume quad flat package, no-lead (QFN) package assembly.

At the company's ISO-9002 certified facility, the company stated that it turns all production orders in less than one week and offers related services, including testing and wafer thinning, as a turnkey solution. Advanced wafer-level and system-level packaging solutions are planned for introduction this year.

ESEC Names Steinbichler Chief Operating Officer

The Board of Directors of ESEC (Cham, Switzerland, www.esec.com) appointed Jürgen Steinbichler as chief operating officer on Feb. 1. ESEC provides chip assembly equipment and processing techniques for use in the semiconductor industry.

Steinbichler bears overall responsibility for the operating activities of ESEC. Having successfully engineered the combination of ESEC's two former business units, die attach and wire bonding, Steinbichler will now also assume responsibility for operations and sales, as well as all management functions with the exception of the finance and investor relations.

Steinbichler joined ESEC as a member of the Executive Board in 1999. In his most recent position as vice president of product and technology, he was responsible for the company's wire bonding and die attach product lines. He has previously worked at Siemens and Infineon/White Oaks.

GSI Lumonics Announces Major Laser Trim Order

GSI Lumonics Inc. (Billerica, MA, www.gsilumonics.com) has announced the receipt of an order for multiple WaferTrim M310 systems from a U.S.-based integrated circuit (IC) manufacturer. The total value of this order is approximately \$6 million. The order closely follows a similar order for \$7 million. The systems for both orders will be delivered in the first quarter of 2004.

Laser trim is a critical tool used in the production of precision linear and mixed signal devices with increased functionality on smaller geometry die. It assists in the process to produce multiple devices from the same die.

"Recent strong demand from a variety of markets, including automotive and for new consumer electronic devices, has translated into a need for precise, reliable laser trim," said Nino Federico, GSI Lumonics vice president and general manager of the company's Laser Systems Division.

GSI Lumonics supplies motion control components, lasers and laser-based advanced manufacturing systems to the medical, semiconductor, electronics and industrial markets.

Matsushita Invests 130 Billion Yen in Semiconductor Facility

Matsushita Electric Industrial Co. Ltd. (MEI, Osaka, Japan, www.panasonic.co.jp/global/top.html), best known for its Panasonic brand name, has announced a plan for the construction of a new 130 billion-yen (\$1.2 billion) semiconductor production facility at its Uozu Plant in Toyama Prefecture.

The expansion project is planned to increase production capacity of advanced system large-scale integrations (LSIs), which require cutting-edge 90-nanometer processing technology. MEI plans to begin construction in May 2004 and launch production toward the end of 2005.

The company has been involved in the digital home electronics market with its 0.13-micron processing system LSIs with a vision to help the development of miniaturization technology. MEI plans to increase the supply of further advanced system LSIs focusing on five key areas: DVDs, digital TVs, mobile communications equipment, secure digital memory cards and network-related equipment.

The new plant, which will be equipped with the 90-nanometer production process for 300 mm diameter wafers, will start production at the end of 2005 and eventually increase production capacity to 7,500 wafers per month.

Competition, Excess Manufacturing Capacity Impact Optoelectronics Profitability

The recent economic slowdown has reduced demand from end-user industries, heightening competition and flattening the growth rate in the world optoelectronics market. New analysis from Frost & Sullivan (Palo Alto, CA, www.electronics.frost.com) reveals that this industry generated revenues totaling \$4.23 billion in 2002. Total market revenues are expected to reach \$7.22 billion in 2009.

"Lack of capacity utilization, price constraints and reduced volumes are greatly impacting the profitability of optoelectronic component manufacturers," said Frost & Sullivan research analyst Mandeep Singh Oberoi.

As rapidly expanding communication technologies drive higher bandwidths and increased speed of communication products, manufacturers of optoelectronic components are under pressure to enhance the speed of the devices as well as the bandwidth they can support.

Another trend in the industry is toward lower package dimensions to help reduce the size of products. Higher budgets are required to design and test newer packages without affecting the speed of the optoelectronic device. However, customers are not willing to pay a higher price for improved technology, and vendors are being compelled to cut costs without compromising on quality.

According to the report, the increasing brightness and range of colors in light-emitting diodes (LEDs) offers new market opportunities for manufacturers that keep pace with the technology. In other segments, the convergence of computers, communications and consumer electronics is driving demand for optocoupler devices, while photodetectors are likely to do well in the medical device market. High-end telecommunications products, office automation and peripheral devices are expected to push laser diode sales.

Consumer Base for Electronics Products Evolving

Reflecting an expansion from the industry's traditional consumer base, women, African-Americans, Hispanics, teens and seniors are rapidly adopting consumer electronics products, according to a study released by the Consumer Electronics Association (CEA, Arlington, VA, www.ce.org). The study, *Five Consumers to Watch: An In-Depth Look at Emerging Consumer Groups in the CE Marketplace*, provides information about the attitudes, purchase considerations, decision influences, purchase channels, current product ownership and future purchase intent of these five influential consumer segments.

"The results provide hard proof of what many of us have known for years—that consumer electronics products are for everyone," said Gary Shapiro, president and chief executive officer of CEA. "When manufacturers know about their customers, they can make better products. The results from this study provide consumer electronics manufacturers and retailers with the kind of details they need to be more effective—from the research and development process to new marketing strategies—by creating products and services that will meet the needs of the industry's expanding consumer base."

Some of the study's findings include: women are involved in 89% of all consumer electronics purchase decisions; 40% of African-American adult consumers plan to purchase a wireless phone within the next year, compared to just 31% of the general population; 76% of Hispanic consumers in the U.S. believe products that incorporate the newest technologies are much more convenient to use; 91% of teens age 13-17 have purchased a consumer electronics product within the past 12 months—significantly higher than all adults (82%); and 17% of senior households (age 55 and up) own a high-definition television.

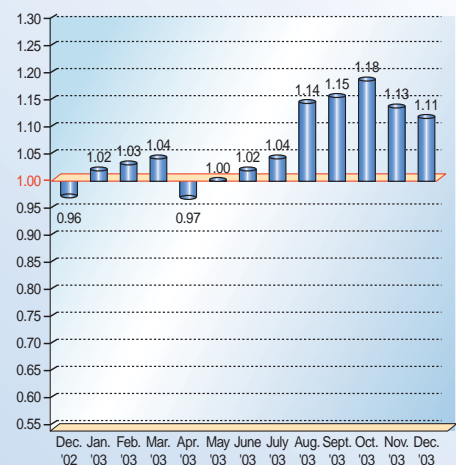
The study was conducted in association with Rockbridge Associates Inc. (Great Falls, VA), an independent technology research firm.

December 2003 Book-to-Bill

The North American IMS/PCB Industry Book-to-Bill Ratio for December 2003 remained positive at 1.11. The ratio is calculated by averaging the index numbers for orders booked over the past three months and dividing by the average index numbers for sales billed during the same period. A ratio of more than 1.00 suggests that current demand is ahead of supply, which indicates probable near-term growth.

Industry sales billed (shipments) in December 2003 increased 2.9% from December 2002, and orders booked increased 12.2% from December 2002.

Compared to 2002, shipments of PCBs are down 16.8% year-to-date, while bookings of PCBs are down 6.0% year-to-date.



Hover-Davis Opens Sales and Support Center in China

Hover-Davis Inc. (Rochester, NY, www.hoverdavis.com) has announced the opening of a sales and support center based in Shenzhen, China. The company has been a developer and manufacturer of component delivery systems for the electronics assembly industry for the past 15 years.

In response to growing customer demand in the region, the new office will be responsible for service and sales of Hover-Davis products throughout China. Factory trained sales professionals and engineers will support the representative network and end users directly.

Martin Lutzen, regional sales manager for Asia-Pacific, will be responsible for managing the office. Lutzen joined the company in April 2003 and brings nearly a decade of experience working in the electronics industry within the Pacific Rim region.

The China office can be contacted directly by email: sales-china@hoverdavis.com.

Toshiba Establishes New Company in China

Toshiba Corp. (Tokyo, Japan, www.toshiba.co.jp) has established a new company in Shanghai, China, to coordinate the activities of present semiconductor sales, marketing and production subsidiaries in China, Hong Kong and Taiwan.

Since the early 1980s, the company has built up sales, marketing and production networks for electronic components in the region that now includes five subsidiaries. These operations serve a regional market that is forecasted to account for 40% of worldwide semiconductor demand by 2010.

As the regional representative for Toshiba's semiconductor business, Toshiba Semiconductor Co. will take over the market research, engineering support and sales support functions currently handled by local subsidiaries.

Shigeo Koguchi, company president of Semiconductor Co. at Toshiba Corp. said, "We have set our goal, for the semiconductor business in the region, to achieve a sales target of 600 billion yen by 2010."

Report: Double-Digit Growth in China's Connector Industry

Global Sources Ltd. (Singapore, www.global-sources.com) has released a new report, *Connectors: Supplier Capability in China*. The report cites

Adhesives Research Celebrates New Center in Singapore

Adhesives Research Inc. (Glen Rock, PA, www.adhesivesresearch.com), a developer and manufacturer of custom pressure-sensitive adhesive tapes, coatings, specialty films and laminates, has announced the grand opening of its new technical center in Singapore. The center builds on sales operations that were established in 2000 to create an Asian presence for the company.

The technical facility is housed in the same complex as the newly relocated and expanded sales offices for Adhesives Research Pte Ltd. at Singapore Science Park 2. It will serve the electronics, medical and display market sectors in Southeast Asia, China and the Pacific Rim.

It will be staffed by associates who have trained for the past year at the company's research and development (R&D) center in Pennsylvania and at its European R&D center in Limerick, Ireland. The company plans to grow the Singapore center into a full-fledged R&D laboratory.



Guest of Honor Mr. Tan Chek Ming, assistant managing director of the Economic Development Board of Singapore, gives a speech during the grand opening ceremony.

that more than two-thirds of connectors being produced in mainland China are designed for use in consumer electronics, communications and computer industries—a segment that was expected to grow 26% in 2003. Demand from the computer and consumer electronics markets in particular is forecast to drive double-digit growth in the Chinese connector market during 2004.

Mark Saunderson, publisher of *Asian Sources Electronic Components* magazine, said, "Our research shows that international markets remain important to mainland connector manufacturers. Thirty-three percent of the companies covered in the report exported the majority of their output to the U.S., while 29% identified Europe as their primary market."

The findings indicate that mainland China is moving towards a more dominant position in the global connector supply market.

"Total sales of connectors are valued at \$3.46 billion, representing 12% of the global market, and by 2004, the China Electro Connector Association expects that China will manufacture 17% of the world's connectors," said Saunderson.

EV Group To Supply Beijing Nanotechnology Center

EV Group (EVG, Schärding, Austria, www.evgroup.com), a manufacturer of microelectro-

mechanical systems (MEMS) and semiconductor wafer processing equipment, has announced the successful installation of several advanced wafer processing tools at Tsinghua-Foxconn Nanotechnology Center at National Tsinghua University (NTHU, Beijing, China, www.tsinghua.edu.cn). NTHU serves as a knowledge site in MEMS and nanotechnology throughout Asia.

EVG has installed a resist coating system, a develop system, a cleaner, a precision alignment system for double-side lithography and a hot embossing and nanoimprinting system. The manufacturing line covers all process steps for MEMS and nano fabrication.

The Tsinghua-Foxconn Nanotechnology Research Center, a cooperation with Foxconn Group, was completed in July 2003. The center has advanced nanotechnology equipment and testing equipment, as well as facilities for research and communication.

Would you like to contribute to **Asia WATCH**?
Contact Robin Norvell at norvell@upmediagroup.com.